

modulation dispersion (PMD) in optical transmission systems and in transmission fibres in particular, comprising

- a means for measuring PMD-induced distortions,
- an emulator unit for adjustable PMD levels, and
- a controller which the output signal of said measuring means is applied to and which serves to control said emulator unit,

characterised in that said controller comprises several control loops in which it modulates regulator elements with different frequencies, that said controller derives from the output signal of said measuring means information about the amount and the phase position of the signal output from said emulator unit, and uses this information to perform a direct control function.

47. (New) System according to Claim 31,

characterised in that said PMD emulator unit is a variable infinite polarisation regulator having sufficient degrees of freedom, which projects said two PSP of the fibre to be compensated onto the PSP of said variable PMD delay element, without thoroughly controlling a local minimum of the overall PMD.

48. (New) System according to Claims 1, 7 or 18,

characterised in that said controller comprises several control loops in which it modulates regulator elements with different frequencies, that said controller derives from the output signal of said measuring means information about the amount and the phase position of the signal output from said emulator unit, and uses this information to perform a direct control function.